

SUBJECT:	FERMI RESEARCH ALLIANCE PROCEDURES PROJECT MANAGEMENT	NUMBER:	12.PM-002
RESPONSIBILITY:	Office of Project Management Oversight	REVISION:	<u>43</u>
APPROVED BY:	Head, Office of Project Management Oversight	EFFECTIVE:	<u>09/17/09</u> <u>03/08/1</u> <u>2</u>
TITLE	Control Accounts, Work Packages, Planning Packages		

DRAFT FOR DISCUSSION

1.0 PURPOSE

This document describes the procedures governing the development and use of control accounts and work packages. A control account (CA) is a management control point at which budgets (resource plans) and actual costs are accumulated and compared to earned value. Work packages (WP) are a subdivision of a control account and consist of a discrete, or level-of-effort set of tasks that have been planned and budgeted in detail. Planning packages are created to describe work within a control account that will occur in the future. This procedure is applicable to all projects, but particularly to projects using the Fermi Research Alliance, LLC (FRA) Earned Value Management System (EVMS).

2.0 SCOPE

This procedure outlines the steps used to develop control accounts, work packages, and planning packages.

3.0 RESPONSIBILITIES

3.1 Project Manager (PM) is responsible for

- providing project office staff to execute project controls systems referenced in this procedure
- appointing the Control Account Managers (CAMs) for the project with the concurrence of the affiliated functional manager(s)
- providing the CAMs with high-level scope, schedule, and cost boundaries for the project, as well as customer requirements, other constraints, and planning guidance prior to the development of control accounts
- concurring with the CAMs development of their control account information.

3.2 Control Account Manager (CAM) is responsible for

- preparing detailed scope, schedules, and cost estimates for the control account
- subdividing the work into work packages and planning packages
- planning and budgeting assigned control accounts
- analyzing and managing control account performance
- execution of the scope of all work packages within a control account
- identifying the Performance Measurement Technique (PMT) to be used to track each work package

3.3 Work Package (WP) Manager is responsible for

- executing the scope described in the work package document within the budget and schedule constraints shown.
- reporting back project-related information to the CAM

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4.0 PROCEDURES

4.1 Control Accounts (CAs)

CAs are the management control point at which budgets (resource plans) and actual costs are accumulated and compared to the earned value. A control account is a natural management point for planning and control because it represents the work assigned to one responsible organizational element on one work breakdown structure element.

A control account uses a chargeable task code in the Fermilab financial management system to collect actual costs. Control accounts may consist of multiple lower level chargeable task codes, which roll up to the control account level. It is the project's prerogative to use multiple lower level chargeable task codes, which can help with capitalization, tracking costs, and analysis of variances. See Figure 1 below for the relationships between work packages, chargeable task codes, and control accounts.

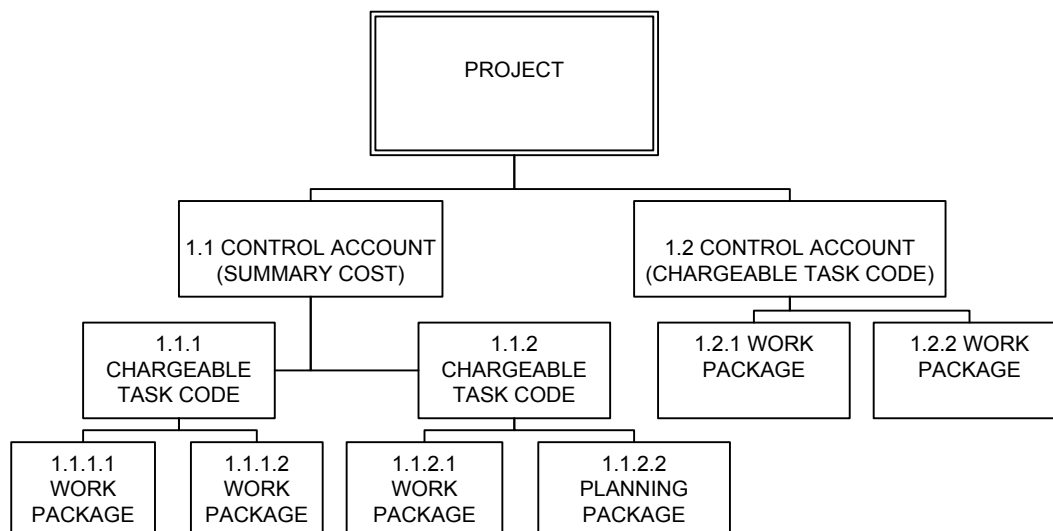


Figure 1 Control Account Structure

Control accounts are made up of one or more work packages and planning packages through the chargeable task codes; however, a single work package is never divided amongst multiple control accounts.

Control accounts and the associated chargeable task codes are opened in the accounting system only after the Work Authorization form has been signed (see Work Authorization, EVMS Procedure 12.PM-003). When a CAM determines a chargeable task code for the control account should be opened, he/she contacts the Project Controls staff by email to request the code be opened. The Project Controls staff will notify the Finance Section to open the appropriate chargeable task codes, and Project Controls will then email the CAM when the chargeable task code is open.

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When all work packages are completed within a chargeable task code, the CAM will notify the Project Controls staff that these codes should be closed. Project Controls will work with the Finance Section to close the appropriate codes. When all chargeable task codes associated with a single control account are finally closed, the control account will cease with monthly reporting. Project Controls will track which control accounts have been closed and no longer require reporting.

4.2 Work Packages (WPs)

Work packages are a subdivision of a control account and consist of a discrete or level of effort task that have been planned, estimated, and budgeted in detail. Work packages constitute the basic building blocks used in planning, measuring, accomplishment, and controlling project work. A work package may contain lower level detailed activities, but has the following characteristics:

- is distinguishable from all other work packages
- has responsibility assigned to a single work package manager
- has a scheduled start and completion date
- has a budget expressed in dollars, labor hours, or measurable units
- is limited in duration to a relatively short span of time (generally, two reporting periods or less)
- is integrated with detailed engineering, construction, operations, and transition schedules (if appropriate)

A completely planned work package is documented in the resource-loaded schedule with this information:

1. A unique identifier number and title
2. A description of the scope associated with that WP
3. Resources required to perform the work
4. Estimated duration(s) of the work, with expected start and finish dates
5. One Performance Measurement Technique to be used in measuring performance
6. Project Manager and Control Account Manager approved Basis of Estimate

All work scheduled to start in a current month has a detailed plan for the applicable work package, and is covered by a signed Work Authorization Agreement (see *Work Authorization and Funds*, EVMS Procedure 12.PM-003).

4.3 Planning Packages

Planning packages are created to describe work within a control account that will occur in the future. Planning packages must have a work scope, schedule, and time-phased budget. Planning packages are normally larger (scope, schedule, and budget) than individual detailed work packages, but planning packages must still relate to a specific work scope. Individual planning packages do not require the detail found in work packages. When planning packages are converted into work packages, they are defined in greater detail in the schedule. Conversion of planning packages to work packages should occur ~~no later than six~~

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~~months before work is scheduled to begin~~sufficiently in advance of the planned work start date such that it can begin on schedule.

4.4 Control Account Plan Development Process

Control Accounts must be developed for all work scope in the project. This is done by the CAM in collaboration with the project controls staff and the Project Manager. This iterative process includes the detailed plans, work packages and planning packages as appropriate, to insure the control account scope, schedule, and budget is defined, consistent with project objectives, and achievable. Bases of Estimate are required for each Work Package (see *Cost Estimating*, EVMS Procedure 12.PM-005).

Items to be developed when planning a control account are:

1. Work definition (found in the WBS dictionary)
2. Budget (BCWS by month by work package and planning package), also know as the Control Account Plan. (Where uncosted labor hours are part of a control account, a Control Account Plan showing BCWS in hours by month by work package and planning package shall also be included.)
3. Schedule including resource planning
4. Work Authorization Form
5. Performance measurement techniques for related work packages

Other items CAMs should consider when setting up control accounts, including, but not limited to, the reporting requirements of various funding types (such as R&D or MIE), segregating costs for future capitalization of equipment and facilities, and project phasing

After data is collected for all control accounts, the project controls staff reviews the project schedule and budget with the Project Manager to assess their consistency with project objectives. If necessary, the Project Manager discusses the revisions to the control account planning with the CAMs. Project Controls uses the agreed-upon control account information to establish the project Performance Measurement Baseline (PMB) and enters the control account data into the project EVM system using the scheduling and performance measurement tools.

Once the PMB is established (no later than at CD-2 for DOE projects), the Project Manager, Project Controls, and the CAM will sign the Work Authorization for each control account, authorizing the work to proceed within the CA parameters. The Work Authorization form is included in the appendix.

The overall process is shown in the flowchart in Appendix C.

5.0 REFERENCES

DOE Order 413.3~~BA~~, *Program and Project Management for the Acquisition of Capital Assets Fermi Research Alliance, LLC (FRA) Earned Value Management System Description*
 EVMS Procedure 12.PM-001 *Project WBS, OBS and RAM*
 EVMS Procedure 12.PM-003 *Work Authorization*
 EVMS Procedure 12.PM-004 *Project Scheduling*

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EVMS Procedure 12.PM-005 *Cost Estimating*

6.0 APPENDICES

12.PM-002A: Appendix A: Signature Page and Revision History

12.PM-002B: Appendix B: Acronyms and Glossary

12.PM-002B: Appendix C: Control Account, Planning, and Work Authorization Flowchart

12.PM-002C: Appendix D: Work Authorization Form

12.PM-002D: Appendix E: Work Authorization Form - Example

Appendix A
SIGNATURE PAGE AND REVISION HISTORY

This procedure approved by: _____
Director, Office of Project Management and Oversight **DATE**
Fermi National Accelerator Laboratory
Dr. L. E. Temple

TABLE OF REVISIONS

Author(s)	Description	Revision	Date
	Initial Version	0	10/17/08
E McCluskey	Removed references to funding. In Appendix B changed definition of Control Account and added definition for Control Account Manager.	1	12/02/08
E McCluskey	Clarified CAP definition, reworded CA description to include planning packages	2	3/27/09
E McCluskey	Revised to include tracking hrs for uncosted labor; revised WAD form to include CRs	3	09/17/09
M. Kaducak	Removed requirement to convert planning packages to work packages six months before work starts in section 4.3. Updated DOE O 413.3A to DOE O 413.3B in section 5.0.	4	03/08/12

Appendix B

ACRONYMS AND GLOSSARY

CA — Control Account
CAM – Control Account Manager
CD — Critical Decision
OBS – Organizational Breakdown Structure
RAM — Responsibility Assignment Matrix
PM — Project Manager
PMT – Performance Measurement Technique
WAD — Work Authorization Document
WBS — Work Breakdown Structure
WP – Work Package

Control Account (CA) - A key management control point located at the natural intersection point of the WBS and the OBS, where functional responsibility for work is assigned. It represents the point at which budgets (resource plans) and actual costs are accumulated and compared to earned value for management control purposes.

Control Account Manager (CAM) – The member of the project team responsible for the performance defined in a Control Account and for managing the resources authorized to accomplish the tasks.

Control Account Plan (CAP) – Report from cost processor showing the time phased budget for the control account by work package by month.

Critical Decision (CD) – On DOE projects, a formal determination made by the Acquisition Executive and/or designated official at a specific point in a project life cycle that allows the project to proceed. Critical Decisions occur in the course of a project: at determination of Mission Need (CD-0), at the completion of conceptual design (CD-1), at project baselining (CD-2), at the commencement of execution (CD-3), and at turnover (CD-4).

Functional Manager – Line manager whose responsibility includes assigning staff for matrixing to projects

Performance Measurement Technique (PMT) – A defined method of earning value in relation to the resources expended. Also known as Earned Value Methodology.

Project Controls – Project support staff for planning, baseline development, management system plan preparation, as well as for monitoring, assessing, controlling, and reporting progress against the project baseline.

Responsibility Assignment Matrix (RAM) - A structure that relates the project organization structure to the work breakdown structure to help ensure that each element of the project's scope of work is assigned to a responsible individual.

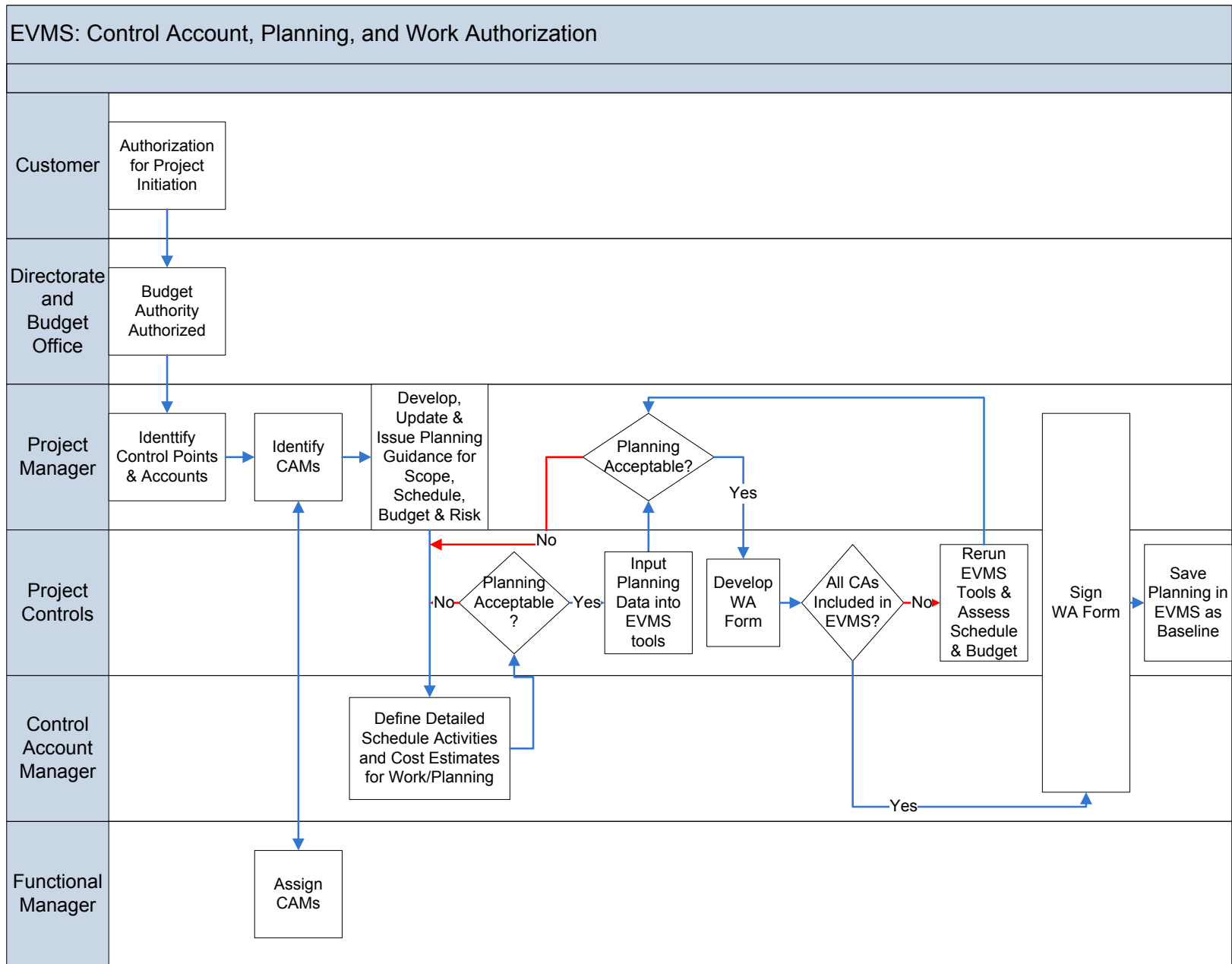
Uncosted Labor – Labor accounted for in work package estimates, but at a \$0 rate in the budget. Such a rate may be used for scientific effort at the customer's direction.

Work Authorization Document (WAD) - A group of documentation consisting of the Work Authorization Form and supporting attachments (as outlined in Procedure 12.PM.003) that represents the agreement between the Project Manager and CAM for the work to be completed.

Work Breakdown Structure (WBS) - A product-oriented grouping of project elements that organizes and defines the total scope of the project. The WBS is a multilevel framework that organizes and graphically displays elements representing work to be accomplished in logical relationships. Each descending level represents an increasingly detailed definition of a project component. Project components may be products or services. It is the structure and code that integrates and relates all project work (technical, schedule, and cost) and is used throughout the life cycle of a project to identify and track specific work scopes.

Work Package (WP) – A task or set of tasks performed within a control account. The work package is the lowest level activity to which resources are assigned.

APPENDIX C Control Account, Planning, and Work Authorization Flowchart



Appendix D Work Authorization Form

REVISED: DAY-MONTH-YEAR

WORK AUTHORIZATION FORM

Project

Control Account Title:

Control Account Number:

Control Account Manager:

Work Breakdown Structure Element: WBS X.X.X

Period of Performance: / / to / /

Current Authorized Budget (in AYS with all burdening): \$

Current Authorized Budget for Uncosted Scientist Labor : hours

REVISION HISTORY:

CR#	APPROVAL DATE	CR DOCDB FILE #	PRIOR BUDGET IN \$	NEW BUDGET IN \$	PRIOR UNCOSTED LABOR BUDGET IN HOURS	NEW UNCOSTED LABOR BUDGET IN HOURS	PRIOR PERIOD OF PERFORMANCE

This Work Authorization, including all attachments, represents the agreement between the Project Manager and Control Account Manager (CAM) to perform, or to have performed, efforts defined by the following:

- 1.) A WBS Dictionary sheet that defines the scope of work for this WBS element/Control Account. If additional definition is warranted, or required for a particular WBS element, (e.g., QA reasons, Work Orders for third party services, etc) attach applicable documentation.
- 2.) A detailed Control Account schedule showing all work packages and planning packages.
- 3.) A detailed resource report by WBS and schedule activity.
- 4.) Budgeted cost by month at the Work Package level (Control Account Plan)
- 5.) Budgeted uncosted labor hours by month at the Work Package level (Control Account Plan)

This Work Authorization is for the lifecycle of the project. Funding will be authorized incrementally based on schedule status and funding availability, and communicated by other means to CAMs. Any change to this document will be implemented through the Change Control procedures.

Reviewed by: _____
Project Controls Group Date

Approvals: _____
Control Account Manager Date

Project Manager Date

THE CHARGEABLE TASK CODE(S) FOR A CONTROL ACCOUNT WILL NOT BE OPENED WITHOUT A SIGNED WORK AUTHORIZATION FORM.

APPENDIX E WORK AUTHORIZATION FORM -
EXAMPLE

REVISED: 15-Jan-2008

WORK AUTHORIZATION FORM
Cyromodule Production Project

Control Account Title: Cryomodule Production Components

Control Account Number: 1.3.3

Control Account Manager: Joe Smith

Work Breakdown Structure Element: WBS 1.3.3

Period of Performance: 02/15/08 to 06/25/10

Current Authorized Budget (in AYS with all burdening): \$3,250,000

Current Authorized Budget for Uncosted Scientist Labor : 1000 hours

REVISION HISTORY:

CR#	APPROVAL DATE	CR DOCDB FILE #	PRIOR BUDGET IN \$	NEW BUDGET IN \$	PRIOR UNCOSTED LABOR BUDGET IN HOURS	NEW UNCOSTED LABOR BUDGET IN HOURS	PRIOR PERIOD OF PERFORMANCE
CR32	01/10/08	518	\$3,100,100	\$3,250,000	500	1000	02/15/08 to 03/30/10

This Work Authorization, including all attachments, represents the agreement between the Project Manager and Control Account Manager (CAM) to perform, or to have performed, efforts defined by the following:

1. A WBS Dictionary sheet that defines the scope of work for this WBS element/Control Account. If additional definition is warranted, or required for a particular WBS element, (e.g., QA reasons, Work Orders for third party services, etc) attach applicable documentation.
2. A detailed Control Account schedule showing all work packages and planning packages.
3. A detailed resource report by WBS and schedule activity.
4. Budgeted cost by month at the Work Package level (Control Account Plan)
5. Budgeted uncosted labor hours by month at the Work Package level (Control Account Plan)

This Work Authorization is for the lifecycle of the project. Funding will be authorized incrementally based on schedule status and funding availability, and communicated by other means to CAMs. Any change to this document will be implemented through the Change Control procedures.

Reviewed by: _____
Project Controls Group Date

Approvals: _____
Control Account Manager Date

Project Manager Date

THE CHARGEABLE TASK CODE FOR A CONTROL ACCOUNT WILL NOT BE OPENED WITHOUT A
SIGNED WORK AUTHORIZATION FORM.